



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/656,325	09/06/2000	Steven D. Nelson	14073US01	9079
25096	7590	10/30/2007	EXAMINER	
PERKINS COIE LLP			CHAMBERS, TROY	
PATENT-SEA			ART UNIT	PAPER NUMBER
P.O. BOX 1247				3641
SEATTLE, WA 98111-1247			MAIL DATE	DELIVERY MODE
			10/30/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 09/656,325	Applicant(s) NELSON ET AL.
	Examiner Troy Chambers	Art Unit 3641

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If no period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(o).

Status

1) Responsive to communication(s) filed on _____.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 88,89 and 91-106 is/are pending in the application.
 4a) Of the above claim(s) 88 and 89 is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 91-106 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 10/30/2006 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) Information Disclosure Statement(s) (PTO/SB/08)
 Paper No(s)/Mail Date _____

4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date _____
 5) Notice of Informal Patent Application
 6) Other: _____

DETAILED ACTION

Inventorship

1. The request to correct the inventorship of this nonprovisional application under 37 CFR 1.48(a) is deficient because:

It lacks the written consent of any assignee of one of the originally named inventors.

A request made under 37 C.F.R. 1.48 requires, *inter alia*, the written consent of an assignee, if an assignment has been executed by any of the original named inventors.

An assignment recorded on 06/09/2005 and mailed 07/28/2005 shows an attempted assignment from assignor John J. Walsh to assignee Special Devices. However, John J. Walsh has never been listed as an inventor nor an assignee/assignor of record. At this time, it is unclear whether Special Devices is a legitimate assignee of record.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the means by which the bus interface senses the analog condition of a network and the means by which a logic device determines that the bus interface senses the analog condition must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure

is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The specification is objected to under 37 CFR § 1.71 (a). The specification must include:

a written description of the invention or discovery and of the manner and process of making and using the same, and is required to be in such full, clear, concise, and exact terms as to enable any person skilled in the art or science to which the invention or discovery appertains, or with which it is most nearly connected, to make and use the same.

The specification fails to enable one having ordinary skill in the art to make or use the disclosed invention because it does not make clear how or in what manner the bus interface "senses" the analog condition of the network nor how a logic device determines that the bus interface has sensed the analog condition. Applicant has disclosed in the specification that bus interfaces are known in the art. Applicant also

argues that the claimed bus interface is different than that admitted to be prior art. If this is the case then it is incumbent upon the applicant to disclose how or in what manner the claimed bus interface differs. To state what one of ordinary skill in the art would have known, without proof of such knowledge, is insufficient.

Claim Objections

4. Claims 92-93, 96-100 and 102-106 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.
5. Claim 92 does not refer back to a positively recited "analog condition" and further limits it. Also, claims must be definite. By saying the analog condition "can be" something means that it can be just about anything (especially since the transitional "comprising" has been used).
6. Claim 93 does not refer back to nor further limit a previously recited step or structural limitation of the pyrotechnic device. Independent claim 91 does not recite the issuance of a digital disarming command with a unique identifier. Claim 93 is written in terms of a desired result or intended use.
7. Claim 96 does not refer back to nor further limit a previously recited step or structural limitation of the pyrotechnic device. Claim 91 does not require a disarming command to be initiated. Claim 96 is written in terms of a desired result or intended use.

8. With respect to claim 97, independent claim 91 does not require the step of generating a digital arming command. Therefore, it is improper to require the bus controller to perform a function not required by the independent claim.

Claims 98, 99, 100 and 104-106 include similar objections for similar reasons.

Claim Rejections - 35 USC § 112

9. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

10. Claims 91-100 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claim 91 requires that a bus interface sense an analog condition of a network. Neither the applicant's specification nor drawings describe how or in what manner this is accomplished. In the specification, applicant admits that a bus interface is known in the art. However, at no point in the specification does the applicant attempt to distinguish what was admitted to be known from that which is alleged to be new. This amounts to a failing under 35 USC 112, first paragraph because the applicant has not enabled one having ordinary skill in the art to make or use the claimed invention. The examiner has considered applicant's affidavit, especially paragraph 13 which states that one having ordinary skill in the art would have been able to make and/or use the claimed invention. This is a statement of conclusion and not evidence. In re Buchner,

Art Unit: 3641

929 F.2d 660, 661, 18 USPQ2d 1331, 1332 (Fed. Cir. 1991) ("expert's opinion on the ultimate legal conclusion must be supported by something more than a conclusory statement"). Moreover, if the applicant insists that the claimed bus interface is different from that admitted as known in the art then the applicant is requested to prove that the admitted prior art bus interface does not possess the alleged capabilities of sensing an analog condition of a network. *In re Best, Bolton, and Shaw*, 562 F.2d 1252, 195 USPQ 430, 433 (CCPA 1977).

I. ELECTRICAL AND MECHANICAL DEVICES OR PROCESSES

For example, a disclosure of an electrical circuit apparatus, depicted in the drawings by block diagrams with functional labels, was held to be nonenabling in *In re Gunn*, 537 F.2d 1123, 1129, 190 USPQ 402, 406 (CCPA 1976). There was no indication in the specification as to whether the parts represented by boxes were "off the shelf" or must be specifically constructed or modified for applicant's system. Also there were no details in the specification of how the parts should be interconnected, timed and controlled so as to obtain the specific operations desired by the applicant. In *In re Donohue*, 550 F.2d 1269, 193 USPQ 136 (CCPA 1977), the lack of enablement was caused by lack of information in the specification about a single block labelled "LOGIC" in the drawings. See also *Union Pacific Resources Co. v. Chesapeake Energy Corp.*, 236 F.3d 684, 57 USPQ2d 1293 (Fed. Cir. 2001) (Claims directed to a method of determining the location of a horizontal borehole in the earth failed to comply with enablement requirement of 35 U.S.C. 112 because certain computer programming details used to perform claimed method were not disclosed in the specification, and the record showed

that a person of skill in art would not understand how to "compare" or "rescale" data as recited in the claims in order to perform the claimed method.).

In re Ghiron, 442 F.2d 985, 169 USPQ 723 (CCPA 1971), involved a method of facilitating transfers from one subset of program instructions to another which required modification of prior art "overlap mode" computers. The Board rejected the claims on the basis, *inter alia*, that the disclosure was insufficient to satisfy the requirements of 35 U.S.C. 112, first paragraph and was affirmed. The Board focused on the fact that the drawings were "block diagrams, i.e., a group of rectangles representing the elements of the system, functionally labeled and interconnected by lines." 442 F.2d at 991, 169 USPQ at 727. The specification did not particularly identify each of the elements represented by the blocks or the relationship there between, nor did it specify particular apparatus intended to carry out each function. The Board further questioned whether the selection and assembly of the required components could be carried out routinely by persons of ordinary skill in the art. An adequate disclosure of a device may require details of how complex components are constructed and perform the desired function.

The claim before the court in In re Scarbrough, 500 F.2d 560, 182 USPQ 298 (CCPA 1974) was directed to a system which comprised several component parts (e.g., computer, timing and control mechanism, A/D converter, etc.) only by generic name and overall ultimate function. The court concluded that there was not an enabling disclosure because the specification did not describe how "complex elements known to perform broadly recited functions in different systems would be adaptable for use in Appellant's particular system with only a reasonable amount of experimentation" and that "an

Art Unit: 3641

unreasonable amount of work would be required to arrive at the detailed relationships appellant says that he has solved." 500 F.2d at 566, 182 USPQ at 302.

11. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

12. Claims 101-106 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 101 makes 3 references to "its". The examiner is not clear what "its" refers to.

Claim Rejections - 35 USC § 102

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(f) he did not himself invent the subject matter sought to be patented.

14. Claims 91-106 are rejected under 35 U.S.C. 102(f) because the applicant did not invent the claimed subject matter. Applicant has asserted that John J. Walsh is an inventor that needs to be added to the list of current inventors. This request has been denied as discussed above. In view of this denial, claims 91-106 are rejected because the current list of inventors fail to properly include all known inventors, namely John J. Walsh.

Claim Rejections - 35 USC § 102/103

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

Art Unit: 3641

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 91, 92, 94, 95 and 97 are rejected under 35 U.S.C. 103(a) as being unpatentable over the embodiment of Fig. 5 of US 6584907 issued to Boucher in view of the embodiment of Fig. 1A and in further view of US 4860653 issued to Abou and in further view of applicant's admission. The embodiment of Fig. 5 discloses a networked electronic ordnance system, comprising:

- a. initiator devices 16c;
- b. bus controller 12;
- c. party line bus 14;
- d. energy storage capacitor 26.

Signals to arm or fire are received via the party line bus. First, an arm signal is transmitted (col. 15, ll. 67 to col. 16, ll. 1). An arm signal results in the charging of a storage capacitor (col. 16, ll. 5-7). After the storage capacitor is charged, a firing signal may be issued (col. 15, ll. 15 to ll. 24). Transferring power over bus 14 to charge the capacitor is equivalent to "altering an analog condition of a network".

In the embodiment of Fig. 5, unique identifiers are not disclosed as being used. However, the embodiment of Fig. 1A discloses such a feature. Specifically, Fig. 1A discloses initiator devices that are programmed to respond "those signals that contain an address code identified with that initiator." (Col. 9, ll. 49-59). At the time of the invention, one having ordinary skill in the art would have found it obvious to provide the embodiment of Fig. 5 with the unique address features of Fig. 1A. The suggestion/motivation for doing so would have been to provide for the ability to address specific initiators and increase safety. The signals sent by Boucher do not appear to be digital. Abouv discloses detonator assemblies 6 having a microcomputer with a memory that stores an arm code and an actuate code (col. 2, ll. 17-29). The Abouv discloses that said codes are preferably digital. The detonator assembly 6 includes an actuator unit that includes circuit board 192 and a circuit 206 in the form of a microcomputer. The microcomputer is capable of receiving a "BLAST" command and a "BOOM" command from a controller 14 (col. 9, ll. 60 to col. 10, ll. 1). At the time of the invention, one having ordinary skill in the art would have found it obvious to provide ordnance system of Boucher with the digital signal sending and receiving capabilities of Abouv. The suggestion/motivation for doing so would have been to avoid accidental and unauthorized firing Boucher and Abouv disclose a combined network ordnance system as discussed above. However, neither appears to disclose the bus interface. Applicant's specification (pg. 7, ll. 10-14) describes a bus interface and provides that such an interface is well known to those skilled in the art. The examiner accepts this admission and further provides that it would have been obvious to provide the combined

Art Unit: 3641

device of Boucher and Abouv with such a well-known electronic component. The suggestion/motivation for doing so would have been to have signals intercepted and evaluated before being passed on to the electrical components stored within the pyrotechnic initiator. A bus interface intercepts and passes on signals to a processor in which it is connected. Therefore, it is inherent that a processor connected to a bus interface would determine that the interface received information. If the combined device as discussed above sent and arm signal and simultaneously altered the analog condition of the network to a voltage necessary to charge the capacitors, then would be necessary to pass through the gatekeeper known as the bus interface before any signals traveled to the rest of the device.

4. Claim 93 is rejected under 35 U.S.C. 103(a) as being unpatentable over Boucher, Abouv and applicant's admission as applied to claim 91 above, and further in view of Shann. Neither of the combined references disclose a disarm command. Shann discloses an abort command that can be issued to discharge energy stored in a capacitor when it is no longer desired to fire an ordnance device (col. 4, ll. 50-59).

5. Claim 96 rejected under 35 U.S.C. 103(a) as being unpatentable over Boucher, Abouv, applicant's admission and Shann and in further view of US 4674047 issued to Tyler. Boucher, Abouv, applicant's admission and Shann disclose a networked electronic ordnance device as described above. However, neither appears to disclose the disarmed status transmitted by the pyrotechnic device. Tyler discloses a computer controlled electronic ordnance system in which status checks such as arming, power storage, disarming, or power-down etc., are performed (col. 8, ll. 23-33). At the time of

Art Unit: 3641

the invention, one having ordinary skill in the art would have found it obvious to provide the combined pyrotechnic device of Boucher, Abouv, applicant's admission and Shann with the status identification features of Tyler. The suggestion/motivation for doing so would have been to allow an operator to have interaction between the main firing console and the various pyrotechnic initiators.

6. Claims 98, 99 and 100 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boucher, Abouv and applicant's admission and in further view of US 4674047 issued to Tyler. Boucher, Abouv and applicant's admission disclose a networked electronic ordnance device as described above. However, neither appears to disclose the disarmed status transmitted by the pyrotechnic device. Tyler discloses a computer controlled electronic ordnance system in which status checks such as arming, power storage, disarming, or power-down etc., are performed (col. 8, ll. 23-33). At the time of the invention, one having ordinary skill in the art would have found it obvious to provide the combined pyrotechnic device of Boucher, Abouv and applicant's admission with the status identification features of Tyler. The suggestion/motivation for doing so would have been to allow an operator to have interaction between the main firing console and the various pyrotechnic initiators.

7. Claims 101, 102 and 103 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boucher and Abouv, and further in view of US 5894103 issued to Shann. Boucher and Abouv disclose a combined network ordnance system as discussed above. However, neither appear to disclose the digital disarming command that results in a discharging stored activation energy. Shann discloses an abort

command that can be issued to discharge energy stored in a capacitor when it is no longer desired to fire an ordnance device (col. 4, ll. 50-59).

8. Claims 104-106 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boucher and Abouv and Shann and in further view of US 4674047 issued to Tyler. Boucher, Abouv and applicant's admission disclose a networked electronic ordnance device as described above. However, neither appears to disclose the disarmed status transmitted by the pyrotechnic device. Tyler discloses a computer controlled electronic ordnance system in which status checks such as arming, power storage, disarming, or power-down etc., are performed (col. 8, ll. 23-33). At the time of the invention, one having ordinary skill in the art would have found it obvious to provide the combined pyrotechnic device of Boucher, Abouv and applicant's admission with the status identification features of Tyler. The suggestion/motivation for doing so would have been to allow an operator to have interaction between the main firing console and the various pyrotechnic initiators.

Response to Arguments

9. Applicant's arguments filed 10/04/2007 have been fully considered but they are not persuasive. Applicant argues that the cited prior art does not disclose a bus interface that can sense an analog condition of a network nor a logic device that can determine whether the bus interface has sensed said condition. However, as discussed above, these features all appear to be an inherent feature of a bus/logic device combination as provided above. Once again, if a network device such as Boucher is modified to include a bus interface then voltage and command signals would be

received by the bus interface (i.e., the bus interface would sense the command signals and power increase/decrease to charge the capacitor) before being passed on to the logic device (i.e., the logic device determining that the bus interface sensed said signals/change in power). With respect to claim 93, applicant argues that Shann does not disclose the unique identifier limitation. However, it was stated that Boucher provided this limitation, not Shann. With respect to claims 94 and 95, applicant argues that Abouv does not disclose a missile or an aircraft. However, Boucher provides these limitations. With respect to claim 96, applicant argues that Tyler does not disclose a disarmed status that is transmitted by a pyrotechnic device. However, as discussed above, Tyler discloses the benefits of having a microcomputer type firing console is that individual statuses such as arming status could be determined. The disclosure goes on to say that a disarming command could be made from such a computer. If Tyler discloses a pyrotechnic device capable of issuing an individual arming status then it is would have been within the skill of one having ordinary skill in the art to request and receive a disarming command. The examiner has remedied the rejection of claim 97 as discussed above. With respect to claim 98, the examiner repeats the argument of claim 96. With respect to claim 99, Tyler teaches the benefits of a microcomputer because it can request and receive various status checks from individual pyrotechnic devices. Applicant has not provided any particular definition as to what is meant by "periodic" or "regular". Tyler discloses that these queries can be programmed so it is an inherent ability of the device to be operated on a periodic basis. With respect to claim 100, the applicant has not provided a specific meaning or definition of "echoed back". As

interpreted by the examiner, “echoed back” merely means the response provided by the pyrotechnic device. This is part of the various status checks performed by the microcomputer of Tyler. With respect to claim 101, Boucher provides the “unique identifier” limitation. With respect to the rejection of claim 102, it is not necessary for Shann to disclose a missile. Boucher provides that limitation. The remaining arguments appear to be mere duplicates for previous claims. Therefore, the examiner repeats those arguments for claims with similar subject matter.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

e. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Troy Chambers whose telephone number is

571-272-6874 and whose email address is troy.chambers@uspto.gov. The examiner can normally be reached on M-F from 8 am to 4 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael J. Carone, can be reached on 571-272-6873. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Troy Chambers/
Primary Examiner
Art Unit 3641

TC

10/29/2007

Application/Control Number: 09/656,325

Art Unit: 3641

Page 17